

XXII. *On a Species of Carex allied to C. saxatilis, Linn.*

By FRANCIS BOOTT, M.D., F.L.S. &c. &c.

Read December 19th, 1843.

IN 1832 a *Carex* was found in Glen Phee, Clova, by the party accompanying Dr. Graham of Edinburgh upon his annual botanical excursion to the Highlands of Scotland, which has been considered as a form of *C. saxatilis*, Linn. (*C. pulla*, Good.), and to which my attention was lately called by Mr. W. Wilson of Warrington, who in a letter of December 4th says:—"It differs from *C. saxatilis* in having distinctly ribbed fruit, in being much taller, and of a different colour."

I was led by this particular allusion to the plant to examine it minutely, and believing it to be a species, have named it after my excellent friend Dr. Graham; and I offer the following description of it, and the observations on *C. saxatilis*, Linn., which naturally arise out of the consideration of a plant hitherto associated with it.

CAREX GRAHAMI.

Spicis 4-5 cylindricis ferrugineis; masculis 2 (rariùs 1) gracilibus acutis: foemineis 2-3 subremotis crassis obtusis inferioribus pedunculatis evaginatis subnutantibus, stigmatibus 2, perigyniis oblongo-ovatis rostratis bifurcatis inflatis nervosis suberectis ferrugineis (rariùs stramineis) basi pallidis squamâ ovatâ acutâ fuscâ apice albidâ nervo pallido duplo longioribus.

Hab. Glen Phee, Clova, in Scotiâ.

Radix fibris lignosis, repens? *Culmus* bipedalis, acutè triqueter, striatus, supernè scaber, strictus, firmus, basi foliorum rudimentis purpureis, margine sæpè filamentosis, foliisque vestientibus tectus. Pars spicas gerens 3-4½ pollices longa. *Folia* 2 lin. lata, culmo breviora, striata, carinata, scabra. *Bracteæ* foliaceæ, evaginatæ, planæ, auriculis 2, brevissimis, rotundatis, obtusis, ferrugineis, margine scariosis instructæ, culmo ple-

rumque longiores. *Spica mascula* 7-9 lin. longæ, 1-1½ lin. latæ, contiguæ, acutæ; suprema pedunculata, infima sessilis, e fœmineis intervallo 2-12 lin. longo remota. *Squamæ* arcè imbricatæ, obtusæ, ferrugineæ, margine albidæ, demùm sæpè pallidiores. *Spica fœminea* 3, rariùs 2, obtusæ, 7-12 lin. longæ, 4-5 lin. latæ; suprema sessilis, ovata vel oblonga, rariùs apice mascula; reliquæ cylindricæ, pedunculatæ, bracteata; infima remotior subnutans. *Spica* omnes rariùs abbreviatæ. *Squamæ* ovatæ, acutæ, nervo pallido, perigynio duplo breviores. *Perigynium* 2¼ lin. longum, 1⅞ lin. latum, oblongo-ovatum, rostratum, bifurcatum, stipitatum, lucidum, utrinque nervis 3-5 e basi ad apicem instructum, plus minus fusco-ferrugineum, basi pallidum, rariùs stramineum. *Achenium* immaturum.

I am informed by Dr. Graham that this plant was found by Dr. Wight, July 30, 1832, "in a wet spot about half-way up the cliff, on the south side of Glen Phee, Clova; the station very circumscribed, being a circle of from twelve to twenty feet;" and that neither this nor any form of *C. saxatilis* has been met with elsewhere in Clova; the station Glen Dole, affixed to some specimens, being incorrect.

I subjoin a detailed description of *C. saxatilis*, Linn. (*C. pulla*, Good.), that the two plants may be more distinctly contrasted.

CAREX SAXATILIS, Linn.

Spicis 2-3, atro-purpureis; masculâ 1 (rariùs 2) cylindricâ pedunculatâ: fœmineis 1-2, rotundatis ovatisve infimâ plus minus pedunculatâ evaginatâ bracteata erectâ, stigmatibus 2-3, perigyniis subglobosis ovatisve rostratis emarginatis stipitatis patentibus enerviis atro-purpureis basi pallidis squamâ ovatâ obtusiusculâ nigro-purpureâ apice albidâ nervo concolori longioribus.

C. saxatilis, Linn., Fl. Lap. 259 (1737).

C. pulla, Good., Linn. Trans. iii. t. 14 (1795).

Hab. In alpibus Scotiæ, Norvegiæ, Lapponiæ, Sueciæ, Islandiæ, Insularum Fœroensium.

Radix fibris lignosis, repens. *Culmus* 5-9 pollicaris, triqueter, scaber, striatus, firmus, erectus, basi rudimentis foliorum purpureis, folisque vestientibus tectus: pars spicas gerens plerumque 9 lin. ad 1½ poll. longa. *Folia* 1-2 lin. lata, culmum subæquantia, vel eo longiora, striata, scabra, apice triquetra, attenuata. *Bractea* infima subfoliacea; vix unquam culmum æquans, sæpè setacea, evaginata, auriculis 2, rotundatis, brevissimis, fuscis, margine scariosis, instructa; suprema squamæformis. Infra spicas sæpè adest

folium auriculatum culmum æquans, vel eo longius. *Spica mascula* 6–8 lin. longa, lineam lata (rariùs ad basin alterâ sessili abbreviatâ auctâ), fœmineis contigua vel intervallo 4 lin. ad $1\frac{1}{2}$ poll. longo remota. *Squamæ* nigro-ferrugineæ, apice albidæ, nervo concolori, obtusæ, arcuè imbricatæ. *Spicæ fœmineæ* 3–6 lin. longæ, 2–3 lin. latæ, 1 vel 2, approximatae, vel intervallo $1-1\frac{1}{2}$ poll. longo remotæ, nigro-purpureæ: suprema sessilis, rotundata, sæpè parva, pauciflora, rariùs apice flosculo masculino instructa: infima ovata, plus minus pedunculata. *Spicæ*, e stylo exserto, stigmatibusque longis, quasi comosæ. *Squamæ* ovatae, obtusiusculæ, nigro-purpureæ, nervo concolori, apice albidæ. *Perigynium* $1\frac{6}{9}$ lin. longum, $\frac{7}{9}$ lin. latum, subglobosum ovatumve, rostratum, emarginatum, enervium (nisi nervis 2 marginalibus), stipitatum, patens, atro-purpureum, basi pallidum, lucidum, squamâ paululùm longius. *Achenium* immaturum.

That *C. pulla*, Good., is the *C. saxatilis*, Linn., is proved, I think, by the original description of that species in the 'Flora Lapponica,' "*facies eadem et statura est quam 324*" (*C. atrata*, Linn.) and "*spicæ fœmineæ ovatae, magnæ,*" applying to it rather than to *C. rigida*, Good.; and it is confirmed by the Lapland specimen of *C. saxatilis* in the Linnean herbarium (the name and country recorded in the hand-writing of Linnæus); by one, so named by Solander, from Lapland, in 'Herb. Banks.;' and by Gay (Ann. des Sc. Nat. xi. p. 189), who alludes to a specimen of Solander's, so called, as seen by Hartman.

It would be difficult to explain how Goodenough and Smith overlooked the evidence of this fact, especially as the last, in 'Eng. Fl.' iv. 116, admits that the *C. saxatilis*, Linn., is "*more allied*" to *C. pulla* than to *C. rigida*, Good.

In the 'Flora Suecica' (1745) Linnæus gives the habitat, "*in alpibus Lapponicis;*" but the observations there introduced, especially, perhaps, "*sub infimâ spicâ folium setaceum spicâ brevius,*" would lead to the inference that he then confounded *C. rigida*, Good., with it. In the 'Sp. Plant.' (1753), when the specific name was first applied, the habitat is changed to "*in Alpibus Europæ,*" which is too general for *C. saxatilis*, Linn., and can alone apply to *C. rigida*, Good., which consequently, since the time of Oeder (Fl. Danica, t. 159) (1764), has been generally received as the *C. saxatilis*, Linn.

Hartman appears to have first detected the error in 1832, and he has been followed by Koch (Syn. Fl. Germaniæ, 1837), who refers the *C. saxatilis* of the continental authors to *C. rigida*, Good.

I had observed the fact of *C. pulla*, Good., being the true *C. saxatilis*, Linn., by an examination of the Linnæan and Banksian herbaria, and corrected the error of Goodenough in Hooker's 'Brit. Flora,' ed. 4. 1838, without having been aware of Hartman's observation, which I met with in the 'Ann. des Sc. Nat.' vol. xi., published in 1839.

I am informed by Mr. Robert Brown, that a single specimen of this species was discovered in Scotland first by the Rev. Mr. Stuart of Luss, and sent to Lightfoot, who declared it to be a Linnean species; but to what species he referred it, Mr. Stuart had forgotten, as he told Mr. Brown, who on August 11, 1793, showed Mr. Stuart, then at Killin, specimens which he had found that day on Ben Tetskerney, a mountain at the head of Glenlochail, near Loch Tay, the station of Mr. Stuart's specimen.

Don, in his 'Herb. Brit.,' fasc. 8. 190, states that he found it on Ben Lomond in 1789 (the year after the death of Lightfoot), on Ben Lawers in 1793, and on Ben Nevis in 1794; and that he sent it that year to Dickson, who acknowledged it as an undescribed plant. The specimen figured in the 'Linn. Trans.' iii. t. 14. (1795) is in 'Herb. Smith,' recorded there by him as the plant so figured; it was received from Mr. J. Mackay as gathered on Ben Lawers in 1793, and is with two other specimens from the same mountain gathered by Mackay in 1796.

Linnæus, in the 'Sp. Plant.' 1753, quotes with a query under *C. saxatilis*, "Micheli, Gen. 63. t. 32. f. 4," which Lightfoot refers, perhaps correctly, to *C. montana*, Linn., and which, as Willdenow (Sp. Plant. iv. 274) remarks, cannot apply to *C. saxatilis* or *C. rigida*, as the character "*capsulis subhirsutis*" would prove.

The characters distinguishing *C. Grahami* from *C. saxatilis*, Linn., as will be seen on a comparison between them, are the greater height of the first; the more numerous and cylindrical spikes, of a ferruginous colour; the more inflated and elongated, bifurcate, nerved perigynium, twice the length of the scales; and the proportionately narrower leaves, which are shorter than the stem.

C. saxatilis, Linn., is described by all those who particularly notice the fruit as having a *nerveless* perigynium. Mr. Babington, it is true, in his 'Manual,' p. 342, says the fruit is "*slightly nerved*;" but he remarks, that the

only specimens he had had an opportunity of examining belonged “to the tall form, 2 feet high, from Clova” (*C. Grahmi*).

Schkuhr, t. c. c. (1801), figures the fruit *without nerves*. Smith, ‘Fl. Brit.’ iii. 988 (1804), says, “*fructus enerves* :” in the ‘Eng. Bot.’ xxix. t. 2045 (1809) ‘*fruit without ribs* ;” and in the ‘Eng. Fl.’ iv. 104 (1828), “*fruit without angles or ribs* ;” and Kunth, ‘Cyper.’ 410 (1837), says, “*utriculi enervii*.” Neither Goodenough, Willdenow nor Wahlenberg afford any information on this subject.

I regret that I have not met with any mature fruit in the Scotch specimens, the achenium in all being young and undeveloped : and the same is true of the fruit of *C. Grahmi* ; but while the nerves are palpable in the last, I cannot detect any in the first, except the two marginal ones. Considering, therefore, the two plants to differ in this respect, independently of the other characters noticed, which might imply merely a greater luxuriance in the growth of the one as compared with the other, I should have no doubt of the specific distinction between them but for the observations of the accurate and lamented Drejer, who in his ‘Revisio critica Carieum Borealiæ,’ Hafniæ, 56 (1841), which he sent to me a few months before his death, speaks of Greenland specimens of *C. pulla* as varying greatly in size. His form *a. picea*—“*Spicis femineis rotundatis piceis nitidis, perigyniis magis squarrosis, stigmatibus 2, rariùs 3,*”—agrees with *C. saxatilis*, Linn., from Scotland. I have observed 3 stigmata in one specimen in the herbarium of my friend Mr. Forster.

The var. *β. fusca* (excluding the synonym of ‘Eng. Bot.’) I should without hesitation, from the observations which follow it, refer to *C. Grahmi*, but that Drejer does not say anything of the perigynium, whether at least it be with or without nerves ; and I cannot easily believe so accurate an observer would have passed over so important a character as a distinctly nerved perigynium had it existed in the Greenland plant. He refers the form *β.* both to Iceland and Greenland, and says, “*Specimina Grœnlandica in universum duplò-triplòve majora et robustiora quam Islandica ; cæterum eximiè variabilia, ita ut vix crederes, ad unam eandemque speciem ea pertinere. Occurrit culmis semi et bipedalibus ; spicis femineis 1–2–3, approximatis et valdè remotis, rotundatis, ovatis, acutiusculis, et elongato-cylindricis obtusis ; squamis obtusis perigynio breviori-*

bus, et acutis ea superantibus, stigmatibus 2 et 3. Stylus modò rectus, modò basi flexuosus."

In the absence of precise information respecting the perigynium of the larger Greenland specimens, I am inclined to refer them and the specimens from the Rocky Mountains, collected by Mr. Drummond, which I inserted in Hooker's 'Flora Boreali-Americana,' under the name of *C. saxatilis*, to *C. physocarpa*, Presl, a species native of Nootka Sound, of which I have no knowledge beyond that afforded by M. Kunth (Cyper. 420), where I find the following characters, differing from those of *C. Grahmi*: "*spicis masculis 2-3; femineis erectis, glumis perigynio æquilongis, culmo foliis brevioribus.*"

In general habit the Rocky Mountain specimens are closely allied to *C. Grahmi*, but they differ in more elongated male spikes with looser imbricate scales; narrower, subacute, more elongated and laxer female spikes; the perigynium less distinctly nerved and emarginate, scarcely longer than the scales.

Future observation must determine the value of the specific character which I have given to *C. Grahmi*; whether it is to be considered a variety of *C. saxatilis*, Linn., as it has hitherto been looked upon, or referred to *C. physocarpa*, Presl, when that species shall be better known: but in the present state of our knowledge, I cannot but consider it, with Mr. Wilson, entitled to be received as a species. Those who have patiently studied the genus *Carex*, the largest perhaps in the vegetable kingdom, from an extensive suite of specimens collected from different countries, will frankly admit the difficulty of arriving always at satisfactory conclusions respecting the character and limits of species, even in the case of some of those the longest and most familiarly known.

December 15, 1843.